**Paulsboro Train Derailment**
**Gloucester County, NJ**

On November 30, 2012, thirteen Conrail freight cars transporting chemicals and other goods derailed and overturned on a bridge crossing the Mantua Creek in Paulsboro, New Jersey. Three cars fell into the creek. One of the tank cars released approximately 23,000 gallons of vinyl chloride into the air as vapor. The incident occurred approximately 1.5 miles from its confluence with the Delaware River, and very close to the Philadelphia International Airport.

Vinyl chloride, a colorless gas industrial chemical with a sweet odor, is known to be highly toxic, flammable and carcinogenic. It is primarily used in the production of PVC plastic. Short-term exposure to high levels of vinyl chloride in the air can cause dizziness, drowsiness and headaches. Exposure to very high levels can result in death.

At New Jersey Department of Environmental Protection's (NJDEP) request, the EPA brought in its special bus, named the Trace Atmospheric Gas Analyzer (TAGA). The TAGA is taking real-time measurements of vinyl chloride. In addition to the mobile TAGA, EPA set up a network of nine air monitoring instruments in the community to monitor volatile organic compounds in real time. Vinyl chloride is a volatile organic compound and the EPA is using these instruments to indicate its potential presence in the air.

The TAGA readings are instantaneous measurements that are indicative of levels that can be quickly used to make operational decisions.

Results of the mobile TAGA and stationary instrument readings show that levels of vinyl chloride have fluctuated. From November 30 to December 5, EPA monitoring has found periodic exceedances of the level of concern. When the level is exceeded, the EPA immediately informs the NJDEP and the U.S Coast Guard so that decisions can be made to protect the responders and the nearby community. Because the monitoring results have shown some levels above the level of concern, the EPA supports the county and the town in their decision to evacuate residents within a defined area. The EPA will continue its work until the train recovery operation is completed. **[INSERT TAGA Monitoring Link].**

On December 8, EPA began air sampling for vinyl chloride in the air for 24-hour periods using stainless steel sampling devices called Summa canisters. The results of the Summa canister sampling data can be used to evaluate people's potential exposure to vinyl chloride.

- Results of the Summa canister readings taken before the rail car removal operations (December 8-9) showed that levels of vinyl chloride were detected at concentrations that are within EPA's acceptable risk range. Air samples were collected at nine locations over two consecutive days and were analyzed for vinyl chloride. Vinyl chloride was detected at all of the locations with a maximum reading of .930 parts per billion near the Saint James Episcopal Church at Commerce and East Jefferson Streets, and a minimum reading of .0747 parts per billion near the school at Spruce Street and Moreland Avenue.
- Results of the Summa canister readings taken during the rail car removal operations (December 12-13) showed that levels of vinyl chloride were either not detected, or were detected at

concentrations that are within EPA's acceptable risk range. Air samples were collected at up to eleven locations over two consecutive days and were analyzed for vinyl chloride. Vinyl chloride was detected at five of the locations with a maximum reading of .464 parts per billion at the end of East Washington Street, and a minimum reading of .0433 parts per billion on South Commerce Street at its intersection with Jessup Street.

The results were compared to screening values designed to protect people's health and developed for this incident based on an assumed exposure for vinyl chloride of 350 days for one year. All of the detected values were within or below the EPA's acceptable cancer risk range of one in one million (.0877 parts per billion) to one in ten thousand (8.77 parts per billion). The EPA will continue the monitoring and sampling of air until the train recovery operation is completed.

**[INSERT LINKS TO SAMPLING MAP AND SUMMA RESULTS TABLE]**